

DEPARTMENT OF COMMERCE

BUREAU OF STANDARDS

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UNITED STATES GOVERNMENT MASTER SPECIFICATION FOR  
PAINT, LITHOPONE, INTERIOR, WHITE AND LIGHT TINTS,  
FLAT OR EGGSHELL FINISH (SEMIPASTE AND READY-  
MIXED)

FEDERAL SPECIFICATIONS BOARD SPECIFICATION No. 21b

[Revision promulgated November 23, 1927. Supersedes F. S. B. No. 21]

This specification was officially promulgated by the Federal Specifications Board on February 3, 1922, for the use of the departments and independent establishments of the Government in the purchase of flat interior lithopone paint, white and light tints, flat or eggshell finish (semipaste and ready-mixed).

[The technical requirements of this revision of this specification shall become mandatory for all departments and independent establishments of the Government not later than February 23, 1928. They may be put into effect, however, at any earlier date after promulgation.]

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I. GENERAL SPECIFICATIONS

There are no general specifications applicable to this specification.

II. CLASSES

Interior lithopone paint shall be of the following classes: Semipaste and ready mixed.

III. MATERIAL

See Section V, Detail requirements.

## IV. GENERAL REQUIREMENTS

See Section V, Detail requirements.

## V. DETAIL REQUIREMENTS

## 1. PIGMENT

The pigment shall be composed of:

	Maximum	Minimum
	<i>Per cent</i>	<i>Per cent</i>
Lithopone in white paint.....		85
Lithopone in tinted paint.....		75
Matter other than lithopone, including tinting material in white paint.....	15	
Matter other than lithopone, including tinting material in tinted paint.....	25	
Matter soluble in water.....	.8	

The lithopone used shall contain not less than 28 per cent of zinc sulphide and shall not darken on exposure.

## 2. LIQUID

The liquid in both the semipaste and ready-mixed paint shall consist of treated drying oils or varnish, or a mixture thereof, and turpentine or volatile mineral spirits or a mixture thereof. The vehicle in the semipaste shall contain not less than 65 per cent of nonvolatile matter, which shall dry to a tough and elastic film. The vehicle in the ready-mixed paint shall contain not less than 40 per cent of nonvolatile matter. The nonvolatile matter shall dry to a tough and elastic film.

## 3. SEMIPASTE

Semipaste shall be made by thoroughly grinding the pigment with the liquid. The semipaste as received and three months thereafter shall be of a smooth paste consistency, shall not be caked in the container, and shall break up readily in linseed oil, turpentine, volatile mineral spirits, or a mixture thereof to form a smooth paint of brushing consistency. When so thinned with turpentine or volatile mineral spirits the resulting paint shall set to touch in not less than 30 minutes and not more than 2 hours, and shall dry hard within 18 hours to a uniformly smooth, flat, or eggshell finish without streaking, running, or sagging, and shall show no material change in color on exposure to light.

The semipaste when thinned to a heavy painting consistency with linseed oil, turpentine, volatile mineral spirits, or a mixture thereof, shall give a satisfactory stipple finish that will set to touch in not less than 30 minutes and not more than 2 hours and dry hard within

18 hours. The color and hiding power when specified shall be equal to those of a sample mutually agreed upon by buyer and seller. When 100 g of the paste are thinned with 15 g of turpentine the resulting paint shall pass a 25 per cent Kauri reduction test at 24° C. (75° F.). The weight per gallon of the paste shall be not less than 16¾ pounds.

The paste shall consist of:

	Maximum	Minimum
Pigment.....	<i>Per cent</i> 80	<i>Per cent</i> 75
Liquid (containing at least 65 per cent of nonvolatile matter).....	25	20
Water.....	1	-----
Coarse particles and "skins" (total residue retained on No. 325 screen based on pigment).....	2.0	-----

4. READY-MIXED PAINT

Ready-mixed paint shall be well ground; shall not settle badly, cake, or thicken in the container; shall be readily broken up with a paddle to a smooth, uniform paint of good brushing consistency (not a paste). It shall set to touch in not less than 30 minutes and not more than 2 hours, and dry hard within 18 hours to a uniformly smooth, adherent, fairly flat or eggshell finish without streaking, running, or sagging, and free from laps or brush marks. The paint shall not pull under the brush, and shall show good leveling properties. The paint shall pass a 25 per cent Kauri reduction test at 24° C. (75° F.). The color and hiding power when specified shall be equal to those of a sample mutually agreed upon by buyer and seller. After drying for not less than five days, marks made on the painted surface with a soft lead pencil (No. 2) shall be easily removed by washing with soap and warm water without appreciably marring the paint surface. The weight per gallon shall be not less than 14 pounds. The paint shall show no material change in color on exposure to sunlight.

The paint shall consist of:

	Maximum	Minimum
Pigment.....	<i>Per cent</i>	<i>Per cent</i> 65
Liquid (the minimum nonvolatile matter in the liquid shall not be less than 40 per cent).....	35	-----
Water.....	1.0	-----
Coarse particles and "skins" (total residue retained on No. 325 screen based on pigment).....	2.0	-----

## VI. METHODS OF SAMPLING AND TESTING

*Deliveries will, in general, be sampled and tested by the following methods, but the purchaser reserves the right to use any additional available information to ascertain whether the material meets the specification.*

## 1. SAMPLING

It is mutually agreed by buyer and seller that a single package out of each lot of not more than 1,000 packages shall be taken as a representative of the whole. Whenever possible an original unopened container shall be sent to the laboratory, and when this is for any reason not done the inspector shall determine by thorough testing with a paddle or spatula whether the material meets the requirement regarding caking in the container. He shall then thoroughly mix the contents of the container and draw a sample of not less than 5 pounds. This sample shall be placed in a clean, dry, metal or glass container, which it must nearly fill. The container shall be closed with a tight cover, sealed, marked, and sent to the laboratory for test with the inspector's report on caking.

When requested, a duplicate sample may be taken from the same package and delivered to the seller, and the inspector may take a third sample to hold for test in case of disagreement.

## 2. LABORATORY EXAMINATION, SEMIPASTE

(a) **CAKING IN CONTAINER.**—When an original package is received in the laboratory it shall be weighed, opened, and stirred with a stiff spatula or paddle. The paste shall be no more difficult to mix to a uniform consistency than a good grade of semipaste. The paste shall finally be thoroughly mixed, removed from the container, and the container wiped clean and weighed. This weight subtracted from the weight of the original package gives the net weight of the contents. A portion of the thoroughly mixed paste shall be placed in a clean container and portions for the remaining tests promptly weighed out.

(b) **WEIGHT PER GALLON.**—From the weight of a known volume of the paste calculate the specific gravity, which multiplied by 8.33 gives the weight in pounds per gallon. Any suitable container of known volume may be used for the purpose, but a short cylinder of heavy glass, with rounded bottom, about 75 mm high and having a capacity of from 125 to 175 cc (a glass cap to keep dust from reagent bottle stopper) is a convenient vessel for the purpose. The capacity of this vessel is determined to within 1 cc. The paste is packed into it until completely full, the top leveled off smooth with a spatula, and weighed to plus or minus 0.5 g. Subtract the weight of the empty container and divide the remainder by the number of cubic centi-

meters representing the capacity of the container. The quotient is the specific gravity, which can be thus determined within plus or minus 2 in the second decimal place.

(c) MIXING WITH PAINT LIQUIDS.—Place 100 g of the paste in a cup or can, add 15 g (about 17 cc) of turpentine or volatile mineral spirits slowly with repeated stirring and mixing with a padde. Repeat, using equal parts by volume of linseed oil and mineral spirits.

(d) BRUSHING AND STIPPLING PROPERTIES, TIME OF DRYING, AND RESISTANCE TO WASHING.—Brush the paints prepared above on a clean tin, wood, or glass panel. Note whether the paint works satisfactorily under the brush. Place in a vertical position in a well-ventilated room and note setting to touch and drying time. Thin another 100 g portion of the paste with from 5 to 10 cc of a mixture of equal parts by volume of linseed oil and mineral spirits. This should give a very thick brushing paint. Apply by brushing to a panel that has previously had at least two coats of paint, the last coat being nearly flat. Let stand until the paint just commences to set to touch, and then stipple. Note whether the paint sets too rapidly for convenient work. Note also whether the stipple marks remain in place or level out or run.

Let the panels stand for five days, then make marks on them with a soft lead pencil (No. 2), and wash these marks off with warm (75° C.) distilled water and white floating soap, using a sponge or soft rag. The marks must be removed by this treatment without appreciably marring the paint films.

(e) COLOR.—Place some of the paste on a clean, clear, nearly colorless, glass plate. Place some of the standard agreed upon beside the sample on the plate, turn the glass over, and compare the colors.

(f) FASTNESS TO LIGHT.—Apply a sufficient number of coats of the paint (prepared from semipaste and turpentine) to a ground glass plate to completely hide the surface, cover half of this painted surface with opaque black paper, and expose outdoors at an angle of 45° to the direct rays of the sun for six hours. Remove the black paper and examine the surface. In the absence of sunlight, this test may be made by exposing the painted glass plate at a suitable distance from an artificial source of light that has been found to have approximately the same effect as bright sunlight.<sup>1</sup>

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<sup>1</sup> The lamp used for this purpose in the Paint Laboratory of the Bureau of Standards is an inclosed vertical arc lamp with solid pure carbon electrodes one-half inch (13 mm) in diameter and requiring approximately 13 amperes. The arc is inclosed in a cylindrical globe of clear, colorless glass not less than 7 inches in diameter. The paint films are 3 by 6 inches (7.5 by 15 cm), the portion exposed being approximately 2 by 3 inches, the remainder being covered by a metal shield during exposure. The panels are fixed vertically at a distance of about 15 inches (38 cm) from the center and at right angles to the axis of the arc. A line drawn from the center of any paint film to the mean center of the arc should make an angle of not more than 15° with the horizontal. Each test should start with a clean globe and new carbons.

(g) WATER.—Mix 100 g of the paste in a 500 cc short-neck glass flask<sup>2</sup> with 75 cc of toluol (free from water). Connect with the distilling trap and condenser and heat so that the condensed distillate falls from the end of the condenser at the rate of from 2 to 5 drops per second. Continue the distillation at the specified rate until no water is visible on any part of the apparatus except at the bottom of the trap. This operation usually requires less than an hour. A persistent ring of condensed water in the condenser tube should be removed by increasing the rate of distillation for a few minutes. The number of cubic centimeters of condensed water measured in the trap at room temperature is the percentage of water in the paste.

(h) VOLATILE THINNER AND TOTAL NONVOLATILE MATTER.—Weigh accurately from 3 to 5 g of the paste into a tared flat-bottomed dish about 8 cm in diameter, spreading the paste over the bottom, heat at 105° to 110° C. for three hours, cool and weigh. Compute per cent volatile thinner and total nonvolatile matter.

(i) PERCENTAGE OF PIGMENT.—Weigh accurately about 15 g of the paste in a weighed centrifuge tube. Add 20 to 30 cc of "extraction mixture" (see Reagents), mix thoroughly with a glass rod, wash the rod with more of the extraction mixture, and add enough of the reagent to make a total of 60 cc in the tube. Place the tube in the container of a centrifuge, surround with water, and counterbalance the container of the opposite arm with a similar tube or a tube with water. Whirl at a moderate speed until well settled. Decant the clear supernatant liquid, repeat the extraction twice with 40 cc of extraction mixture.

After drawing off the extraction mixture, set the tube in a beaker of water at about 80° C. on top of a warm oven for 10 minutes, then in an oven at 105° to 110° C. for two hours. Cool, weigh, and calculate the percentage of pigment. Grind the pigment to a fine powder, pass through a No. 80 sieve to remove any skins, and preserve in a stoppered bottle.

(j) PERCENTAGE OF NONVOLATILE VEHICLE IN PAINT.—Add together the percentage of water (Section VI, 2, (g)), of volatile thinner (Section VI, 2, (h)), and of pigment (Section VI, 2, (i)), and subtract the sum from 100. The remainder is the percentage of nonvolatile vehicle.

(k) TOUGHNESS AND ELASTICITY TEST (KAURI REDUCTION).—The toughness of the paint is determined by the Kauri reduction test as follows: By proportionately reducing its toughness by the addition of a standard solution of "run-Kauri" gum in pure spirits of turpentine.

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<sup>2</sup> The apparatus for determining water is that prescribed in "Standard Method of Test for Water in Petroleum Products and Other Bituminous Materials," Serial Designation D-95-24, A. S. T. M. Standards, 1924, p. 901, and Figure 1 (b) and (c), p. 902.

(1) *Preparation of the "run Kauri."*—Arrange a distillation flask, water-cooled condenser, and a tared receiver on a balance. Place in the flask about one-third of its volumetric capacity of clear, bright, hard pieces of Kauri gum broken to pea size. Carefully melt and distill until 25 per cent by weight of the gum taken is collected in the tared receiver. Pour the residue into a clean pan and when cold break up into small pieces.

(2) *Preparation of standard "run-Kauri" solution.*—Place a quantity of the small broken pieces of run Kauri, together with twice its weight of freshly redistilled spirits of turpentine, using only that portion distilling over between 153° and 170° C. (308° and 338° F.) in a carefully tared beaker. Dissolve by heating to a temperature of about 149° C. (300° F.) and bring back to correct weight when cold by the addition of the amount of redistilled spirits of turpentine necessary to replace the loss by evaporation during the dissolving of the gum.

(3) *Reduction of the paint.*—Having carefully determined the total nonvolatile matter in the paste (Section VI, 2, (h)), take 100 g of the paste and add to it 15 g of turpentine (meeting F. S. B. Spec. No. 7b). Compute the total nonvolatile matter in the mixture. Add to this mixture an amount of the standard run-Kauri solution equivalent to 25 per cent, by weight, of the nonvolatile matter (pigment plus fixed vehicle) in the prepared paint. Mix these materials thoroughly until a uniform paint is obtained.

(4) *Application of the paint.*—Cut a tin panel from bright tin plate weighing not more than 25 g nor less than 19 g per square decimeter (0.51 to 0.39 pound per square foot). The panel shall be about 7.5 by 26 cm (3 by 10 inches) and must be thoroughly cleaned with benzol immediately before using. Place the panel on a whirling disk with the center of the panel in line with the center of revolution. Add 20 or 30 cc of the paint previously strained through a No. 200 sieve, whirl for three minutes at 300 r. p. m. Cut the panel in half (resulting in two 3 by 5 inch panels). Let stand at room temperature for one hour. Next place the panels in a horizontal position in a properly ventilated oven and bake for five hours at 95° to 100° C. Remove the panels from the oven and allow to cool at room temperature, preferably 24° C. (75° F.) for one-half hour.

(5) *Bending the panels.*—Place the panels with the painted side uppermost over a 3 mm (one-eighth inch) rod, held firmly by suitable supports, at a point equally distant from the top and bottom edges of the panels and bend the panels double rapidly. The paint must show no cracking whatsoever at the point of bending. For accurate results the bending of the panels should always be done at 24° C. (75° F.), for a lowering of the temperature will lower the percentage of reduction that the paint will stand without cracking, while an

increase in the temperature increases the percentage of reduction that the paint will stand. The two panels give a check test.

(l) COARSE PARTICLES AND SKINS.—Dry in an oven at 105° to 110° C. a No. 325 screen, cool, and weigh accurately. Weigh an amount of paint containing 10 g of pigment (Section VI, 2, (i)), add 50 cc of kerosene, mix thoroughly, and wash with kerosene through the screen, breaking up all lumps, but not grinding. After washing with kerosene until all but the particles too coarse to pass the screen have been washed through, wash all kerosene from the screen with ether or petroleum ether, heat the screen for one hour at 105° to 110° C., cool and weigh.

### 3. ANALYSIS OF PIGMENT

Use the pigment extracted in Section VI, 2 (i).

(a) QUALITATIVE ANALYSIS.—Make qualitative analysis following ordinary methods.

(b) MATTER SOLUBLE IN WATER.—Transfer 2.5 g of the pigment to a graduated 250 cc flask, add 100 cc of water, boil for five minutes, cool, fill to mark with water, mix, and allow to settle. Pour the supernatant liquid through a dry filter paper and discard the first 20 cc. Then evaporate 100 cc of the clear filtrate to dryness in a weighed dish, heat for one hour at 105° to 110° C., cool and weigh.

(c) BARIUM SULPHATE AND SILICEOUS MATERIAL.—Transfer 1 g of pigment to a porcelain casserole or dish, moisten with a few drops of alcohol, add 40 cc of hydrochloric acid (1.1, specific gravity), cover, and boil to expel hydrogen sulphide; remove the cover and evaporate to dryness on the steam bath, moisten with hydrochloric acid, dilute with water, filter through paper, and wash with dilute hydrochloric acid and then with hot water until the washings are free from zinc and chlorine. Ignite and weigh the residue, which will be barium sulphate and siliceous material.

Mix the ignited residue with about 10 times its weight of anhydrous sodium carbonate (grind the mixture in an agate mortar if necessary), fuse the mixture in a covered platinum crucible, heating about one hour. Let cool, place the crucible and cover in a 250-cc beaker, add about 100 cc of water, and heat until the melt is disintegrated. Filter on paper (leaving the crucible and cover in the beaker) and wash the beaker and filter thoroughly with hot water to remove soluble sulphates. Place the beaker containing the crucible and cover under the funnel, pierce the filter with a glass rod, and wash the carbonate residue into the beaker by means of a jet of hot water. Wash the paper with hot dilute hydrochloric acid (1:1), and then with hot water. If the carbonate residue is not completely dissolved, add sufficient dilute hydrochloric acid to effect solution, and remove the crucible and cover, washing them with a jet of

water. Heat the solution to boiling and add 10 to 15 cc of dilute sulphuric acid, and continue the boiling for 10 to 15 minutes longer. Let the precipitate settle, filter on a weighed Gooch crucible, wash with hot water, ignite, cool, and weigh as  $\text{BaSO}_4$ . Subtract from the result of the previous determination to obtain the siliceous material.

(*d*) TOTAL ZINC CALCULATED AS ZINC OXIDE.—With material containing no interfering elements (iron, for example) weigh accurately about 1 g of pigment, transfer to a 400-cc beaker, moisten with alcohol, add 30 cc of hydrochloric acid (1:2), boil for two to three minutes, add 200 cc of water and a small piece of litmus paper; add strong ammonia until slightly alkaline, render just acid with hydrochloric acid, then add 3 cc of strong hydrochloric acid, heat nearly to boiling, and titrate with standard ferrocyanide as in standardizing that solution (see Reagents). Calculate total zinc as zinc oxide.

When iron or other interfering elements are present (see Section VI, 3 (*a*)), take the filtrate containing the zinc from VI, 3 (*c*), add a slight excess of bromine water and 2 g ammonium chloride, heat to nearly boiling, add an excess of ammonia, heat for about two minutes, filter, dissolve the precipitate in hydrochloric acid, add 2 g of ammonium chloride, and reprecipitate with ammonia as above. Filter, wash the precipitate with hot 2 per cent ammonium chloride solution, unite the two filtrates, and determine zinc as above.

(*e*) ZINC OXIDE.—Weigh accurately 1 g of the pigment, transfer to a 250-cc beaker, moisten with alcohol, add about 100 cc of 1 to 3 per cent acetic acid, stir vigorously but do not heat, cover, and let stand for 18 hours, stirring once every five minutes for the first half hour. Filter, wash with the dilute acetic acid followed by water, and determine zinc in the clear filtrate as in Section VI, 3 (*d*). Calculate the percentage of zinc oxide.

(*f*) CALCULATIONS.—Subtract the percentage of zinc oxide (Section VI, 3, (*e*)) from the percentage of total zinc as zinc oxide (Section VI, 3, (*d*)) and multiply the remainder by 1.2 to convert to percentage of zinc sulphide. In case the percentage of barium sulphate (Section VI, 3, (*c*)) is not more than 2.58 times as great as the percentage of zinc sulphide, add the two together and call the sum the percentage of lithopone. If the percentage of barium sulphate is greater than this amount, take 2.58 times the percentage of zinc sulphide as the percentage of barium sulphate to be included in the percentage of lithopone and include the remainder in the percentage of tinting and extending pigments. Subtract the sum of the percentage of zinc oxide (Section VI, 3, (*e*)), lithopone, and matter soluble in water (Section VI, 3, (*b*)) from 100. Call the remainder percentage of tinting and extending pigments.

## 4. LABORATORY EXAMINATION, READY-MIXED PAINT

(a) **CAKING IN CONTAINER.**—Follow the procedure outlined in Section VI, 2, (a), noting that the paint should be no more difficult to break up than a good grade of mixed paint.

(b) **WEIGHT PER GALLON.**—Weigh a clean, dry, 100 cc graduated flask. Fill to the mark with the thoroughly mixed paint and weigh again. The increase in weight expressed in grams, divided by 100, gives the specific gravity, which multiplied by 8.33 gives the weight in pounds per gallon.

(c) **COLOR.**—Paint the sample and the standard on clean metal or glass, so that the edges touch one another. Let dry and compare colors.

(d) **BRUSHING PROPERTIES, TIME OF DRYING, AND RESISTANCE TO WASHING.**—Brush the well-mixed paint on a suitable panel, which may be ground glass, steel, or well-filled wood. Note whether the paint works satisfactorily under the brush. Place the panel in a vertical position in a well-ventilated room and let stand for 30 minutes. Note whether the paint has set to touch. Then let the panel stand for 18 hours. The paint should be dry and free from streaks. Flow a portion of the paint on a clean glass plate and dry in a nearly vertical position at room temperature (70° to 100° F.). Note whether the paint streaks or separates within a distance of 4 inches from the top of the film.

Let the panel stand for five days, then make marks on it with a soft lead pencil (No. 2), and wash these marks off with warm (75° C.) distilled water and white floating soap, using a sponge or soft rag. The marks must be removed by this treatment without appreciably marring the paint film.

(e) **FASTNESS TO LIGHT.**—Follow procedure outlined in Section VI, 2, (f).

(f) **WATER.**—Follow procedure outlined in Section VI, 2, (g).

(g) **VOLATILE THINNER AND TOTAL NONVOLATILE MATTER.**—Follow the procedure outlined in VI, 2, (h). Correct the result for any water found (see Section VI, 4, (f)), and report the remainder as volatile thinner. Compute total nonvolatile matter.

(h) **PERCENTAGE OF PIGMENT.**—Follow the procedure in Section VI, 2, (i).

(i) **PERCENTAGE OF NONVOLATILE VEHICLE IN PAINT.**—Follow the procedure outlined in Section VI, 2, (j).

(j) **TOUGHNESS TEST.**—Using 100 g of the paint alone, proceed as in Section VI, 2, (k), adding standard run-Kauri solution equivalent to 25 per cent by weight of total nonvolatile matter (pigment plus fixed vehicle) in paint.

(k) COARSE PARTICLES AND SKINS.—Follow the procedure outlined in Section VI, 2, (l).

(l) TESTING PIGMENT.—Follow the procedure outlined in Section VI, 3.

#### 5. REAGENTS

(a) EXTRACTION MIXTURE.—

10 volumes ether (ethyl ether).

6 volumes benzol.

4 volumes methyl alcohol.

1 volume acetone.

(b) ONE TO THREE PER CENT ACETIC ACID.—Dilute 20 cc glacial acetic to 1,000 cc with distilled water.

(c) URANYL INDICATOR FOR ZINC TITRATION.—A 5 per cent solution of uranyl nitrate in water or a 5 per cent solution of uranyl acetate in water made slightly acid with acetic acid.

(d) STANDARD POTASSIUM FERROCYANIDE.—Dissolve 22 g of the pure salt in water and dilute to 1,000 cc. To standardize, transfer about 0.2 g (accurately weighed) of pure metallic zinc or freshly ignited pure zinc oxide to a 400 cc beaker. Dissolve in 10 cc of hydrochloric acid and 20 cc of water. Drop in a small piece of litmus paper, add ammonium hydroxide until slightly alkaline, then add hydrochloric acid until just acid, and then 3 cc of strong hydrochloric acid. Dilute to about 250 cc with hot water and heat nearly to boiling. Run in the ferrocyanide solution slowly from a burette with constant stirring until a drop tested on a white porcelain plate with a drop of the uranyl indicator shows a brown tinge after standing one minute. A blank should be run with the same amounts of reagents and water as in the standardization. The amount of ferrocyanide solution required for the blank should be subtracted from the amounts used in standardization and in titration of the sample. The standardization must be made under the same conditions of temperature, volume, and acidity as obtain when the sample is titrated.

#### VII. PACKING AND MARKING OF SHIPMENTS

Shall be in accordance with the best commercial practice unless otherwise specified.

#### VIII. NOTES

The material covered by this specification is not intended for outside use. The ready-mixed paint is frequently known as flat or eggshell wall paint. As received it should be suitable for body and finish coat work. For priming coats on walls from 1 quart to 1 gallon of boiled linseed oil should be added to each gallon of the

ready-mixed paint. This ready-mixed paint is not, in general, suitable for stipple finish.

The semipaste is intended for a variety of uses, including stipple finishes. The amount of thinning liquids used can be varied to suit the particular conditions under which the material is used, but in general, for nearly flat top coat about 5 pints of turpentine or volatile mineral spirits should be added to each gallon of paste. For other finishes a thinning mixture of equal volumes of boiled linseed oil and turpentine or volatile mineral spirits should be used. About 7 pints of this mixture to a gallon of the semipaste will give an egg-shell gloss, which is recommended as a top coat. Equal volumes of this thinning mixture and semipaste is a suitable first coat on unpainted walls. About 3 pints of the thinning mixture to a gallon of semipaste will give a paint suitable for stippling.

The semipaste may be purchased by net weight or by volume. The ready-mixed paint should be purchased by volume (231 cubic inches to the gallon). For methods of using this and other materials for similar purposes, see Bureau of Standards Technologic Paper No. 274, entitled "Use of United States Government Specification Paints and Paint Materials."

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